Abstracts from the Lancaster Academic Clinical Trainees' Symposium, 28th February 2018

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The inaugural Lancaster Academic Clinical Trainees Symposium took place on 28th February. This event, hosted by Lancaster Medical School (LMS) at Forrest Hills, brought together academic clinical trainees of all grades based at the University Hospitals of Morecambe Bay Hospitals NHS Foundation Trust (MBHT) and LMS, as well as the clinical and academic faculty involved in their supervision. As well as being an informative educational event, the Symposium was an opportunity to celebrate the work of academic clinical trainees and provide an opportunity for them to present their work to their peers.

In this article we will briefly describe academic clinical training, give an overview of the Symposium, and present the abstracts that were presented by the trainees from LMS and MBHT. We hope that in doing so we will raise awareness of academic clinical training, promote the development of a community of academic clinical trainees in Lancaster, and encourage collaboration.

WHO ARE ACADEMIC CLINICAL TRAINEES?

Put simply, academic clinical trainees are junior doctors who are undertaking academic training alongside their clinical training. This typically involves a research project under the guidance of a supervisor, and often entails studying for higher degrees such as an MSc, MD or PhD. An established, GMC-accredited *integrated academic training* (IAT) pathway exists to provide academic training at a level corresponding to clinical training (Figure 1).[1] This includes intercalated degrees at medical school, the academic foundation programme (AFP), and academic clinical fellowships (ACFs) and clinical lectureships (CLs) at a specialty training level. Trainees may join this pathway at any stage, and it is common for trainees to leave the pathway temporarily, for example to undertake doctoral training out-of-programme.

In addition to the IAT pathway, there are other routes into academic medicine which include arranging time out of postgraduate training to undertake research (designated 'out of programme for research'),[1] for example though a standalone research fellowship, or studying for an MD or PhD. There are also a number of in-training academic posts which focus on medical education or leadership and management, and these are usually provided by Local Education and Training Boards.

Funding for academic clinical training may be provided by individual institutions, through Local Education and Training Boards (e.g Health Education North West), via institutional awards from the National Institute for Health Research (NIHR), or via competitively-recruited personal fellowships provided by funders such as the NIHR, the Medical Research Council (MRC), and the Wellcome Trust. At present, MBHT hosts an AFP, recruiting three academic foundation doctors per year, and LMS hosts an ACF programme as well as supporting trainees of all levels through a variety of fellowships and undergraduate and postgraduate degrees, including the MSc in clinical research,[2] MD and PhD programmes.[3, 4]

THE ACADEMIC CLINICAL TRAINEES' SYMPOSIUM

A varied programme was presented, commencing with an overview of the academic clinical training opportunities at LMS presented by Dr Rachel Isba, Head of School. There followed discussions of academic clinical training from the perspectives of supervisors and trainees, and Dr Marwan Bukhari concluded the morning by presenting an overview of the Academic Foundation Programme at MBHT. The afternoon featured a presentation by our visiting speaker: Dr James Fenton from the NIHR, who described the current and future opportunities that the NIHR offers to support academic clinical training. This was followed by Dr Noamaan Wilson-Baig's and Dr Stefan Andersson's reflections on their experiences of Academic Clinical Fellowship and undertaking the MSc in clinical research at LMS. The afternoon was rounded off by a "three-minute thesis"[5] contest between trainees of all grades, from medical student to senior specialty trainee. For many this was the highlight of the day: illustrating the diversity of the research conducted by academic clinical trainees.

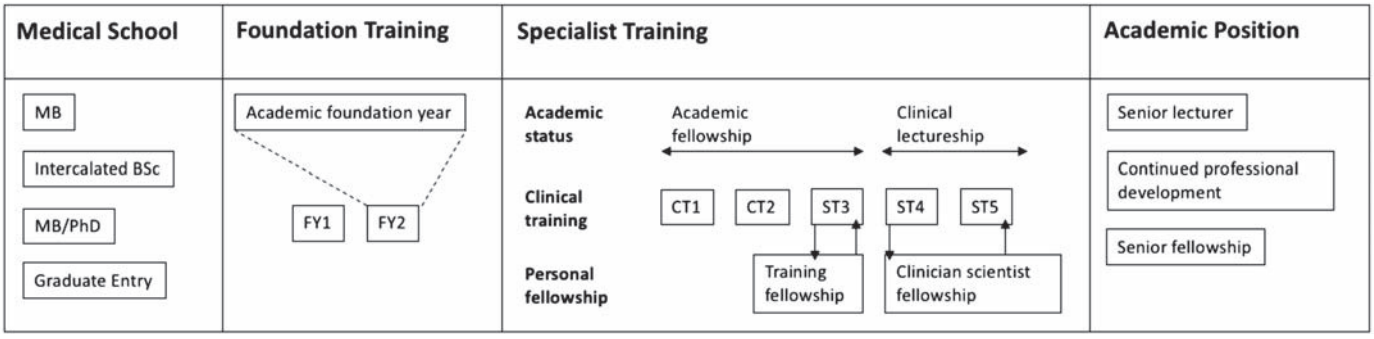

Figure 1: The Integrated Academic Training Pathway

ABSTRACTS

What follows is a showcase of the work being done by Lancaster's academic clinical trainees. The presentations were assessed by an expert panel on the basis of *content* and *engagement*, and after a hard-fought but friendly contest, Megan Corder was awarded the first prize, and Natalia Kyrtata was awarded the runner-up.

Do different healthcare professions understand maternal sepsis differently? A qualitative study

Stefan Andersson, Academic Clinical Fellow in Anaesthesia

Worldwide and in the United Kingdom sepsis is responsible for a significant proportion of deaths amongst pregnant women, and in women who have recently given birth. It has been recommended that early recognition of sepsis in the obstetric population is paramount. We aim to interview staff at a large obstetric unit regarding their understanding of maternal sepsis and its diagnosis. It is hoped that following analysis of these interviews, our study will contribute to the understanding of how sepsis is diagnosed in this population.

Investigating the efficacy of simulation to prepare final year medical students for professional practice: A mixed methods study

Ciara Carpenter, Educational Research Fellow in Obstetrics and Gynaecology

Studies have shown that medical students do not feel prepared to practice as a doctor once they graduate. This mixed methods, two-phase study conducted over two years aims to determine what type of simulation is most effective to prepare medical students for practice and the reasons for this, comparing two different simulation formats. Questionnaire and interview data was collected from students and stakeholders at two phases; immediately after the simulation, and 6 months later when the student participants are qualified doctors.

The GMC found that overall 70% of new FY1s felt prepared for practice; preliminary results compared favourably, with 74% of students feeling prepared. Students have reported feeling unprepared for prescribing, non-technical skills, and dealing with acutely unwell patients. This is not supported by this study with high levels of preparedness for all competencies in these areas except 'leading a team' and 'adapting to changing circumstances and uncertainty'.

An observational study of critical care physicians' assessment and decision-making practices in response to patient referrals

Mike Charlesworth, Academic Clinical Fellow in Anaesthesia (2014-2017)

Abstract already published elsewhere, see http://onlinelibrary.wiley.com/doi/10.1111/anae.13667/full.

First prize presentation: Two novel GLI2 variants: Is there a recurrence risk of holoprosencephaly?

Megan Corder, Academic Foundation Doctor

Pathogenic mutations in transcription factor *GLI2* have been reported to cause hypopituitarism and structural brain abnormalities, including holoprosencephaly. Substantial phenotypic variability has been described, posing difficulties in counselling affected families. We present two patients with novel pathogenic *GLI2* mutations: a missense mutation causing a solitary median maxillary central incisor, hypopituitarism, and polydactyly; and a frameshift mutation resulting in panhypopituitarism. We review the literature and show that truncating, intragenic mutations are associated with hypopituitarism and polydactyly with statistical significance. We confirm that SMMCI is part of the phenotypic variability of pathogenic *GLI2* mutations and suggest that these should be considered as a cause of SMMCI when other HPE causing mutations have been excluded. The possibility of recurrence of HPE and the uncertainty regarding genotype-phenotype associations should be communicated to affected families.

Predictors of fracture risk in patients with systemic lupus erythematosus

Mrinalini Dey, Academic Foundation Doctor

Background: Bone loss in systemic lupus erythematosus (SLE) is multifactorial, including corticosteroids and previous fractures. The effect of BMI and fat mass are less well-characterised. We sought to determine fracture risk factors in patients presenting for bone densitometry.

Methods: Standard densitometry parameters were recorded, plus: rheumatoid arthritis (RA), smoking, alcohol, family history of fractures, secondary operations, and corticosteroid use. Fisher's exact test and logistic regression were used to analyse data.

Results: 150 patients (141 female) with SLE, were included. 34.6% had sustained at least one fracture. Fracture risk increased with age, BMI, fat mass, smoking, and RA (adjusted for corticosteroids). Increased femoral and vertebral bone mineral density decreased fracture risk.

Conclusion: Our study suggests increased age, BMI, smoking, and RA increase fracture risk in SLE patients. To our knowledge, this is the first demonstration of correlation between fat mass and fracture risk in adults. This indicates a differential effect of fat on bone metabolism and lessening of lean body mass.

Telehealth in palliative care in the UK: A systematic review

Sophie Hancock, Academic Clinical Fellow in Palliative Care

Background: Telehealth is the use of technology to support long-distance healthcare and health education. With growing patient numbers requiring specialist palliative care services across geographical distance, telehealth may provide a solution.

Objective: Describe the current use of telehealth in palliative care in the UK.

Method: Literature search strategies with key terms related to telehealth and palliative medicine were developed and key databases searched, along with a review of the grey literature. Studies describing any telehealth initiative used in the UK for palliative care patients, carers or professionals, published in English after 1st January 2010 were eligible for inclusion. Studies were screened by two reviewers, with subsequent data extraction and critical appraisal of eligible studies.

Results: 3762 articles were returned in the database search, with 39 articles from the grey literature. 108 articles underwent full text review with 36 eligible for data extraction.

Conclusion: Systematic narrative synthesis is currently underway.

Quantification of vascular and neuronal pathology in dementia using PET and MRI

Joel Handley, Academic Clinical Fellow in Neurology

While I have yet to undertake the main body of my ACF research component this short talk will set out to introduce my proposed hopes, plans and strategies relating to my academic work. I plan to share the reasons for my strong interest in neurodegeneration and also some of the more recent advances within the field. This presentation will also encompass some of the perceived challenges and difficulties that I may encounter in trying to achieve these goals and also further discuss ways in which I hope to overcome these.

Towards cognitive care delivery systems

Wesley Hutchinson, Academic GP Training Fellow

Demand, intensity and complexity of care is increasing in Primary Care. Patients present more frequently, with multiple co-morbidities, in the context of an aging population and initiatives for community-based complex care. Continuity of care, shown to decrease unplanned hospital admissions, becomes unobtainable with an untenable model of a fulltime General Practitioner (GP) and falling recruitment.

Personal health-tracking, electronic health records (EHR), public health data, new treatments, guidelines and evidence-based-medicine (EBM) threaten to overload the 'information-saturated' General Practitioner. Technology used to extract information and exploit the benefits of data, have failed to make the transition to healthcare. Repetitive tasks and large datasets processing could greatly benefit from digital solutions.

Applying metaprogramming, generative adversarial networks and modular learning to develop a system to analyse data for the physician to make clinical decisions. Reducing cognitive fatigue and non-clinical workload, the 'clinical assistant' returns the GP to his trained role with increased clinical time.

Runner-up prize presentation: Exploring the relationship between tongue muscle strength and clinical symptoms in amyotrophic lateral sclerosis (ALS)

Natalia Kyrtata, Medical Student, Commencing Academic Foundation Programme 2018

Amyotrophic lateral sclerosis (ALS) is a devastating disease which affects the motor neurons in the CNS. There are no validated biomarkers for the assessment of bulbar dysfunction, a poor prognostic indicator which all ALS patients eventually develop. Since the tongue has shown to be affected most by weakness compared to other bulbar muscles, tongue strength (TS) has been identified as a potential biomarker for bulbar disease. My thesis assessed the extent to which TS can detect bulbar dysfunction in ALS patients. Tongue strength measurements were recorded in 27 patients with bulbar ALS and 26 healthy volunteers. These were correlated with clinical signs and symptoms of bulbar dysfunction. A significant difference was shown between volunteers and patients, and between volunteers and patients without any tongue weakness or wasting. This suggests that TS may have the potential to detect preclinical signs. This could facilitate a more accurate prediction of disease progression and greatly impact future clinical decision-making.

Physical health referrals quality improvement project and The Orchard

Bradley Lonergan, Academic Foundation Doctor

Elective physical health referrals from The Orchard (inpatient psychiatry) to Royal Lancaster Infirmary can be made by telephone, fax, email or physically handing-in a paper referral. However, there are no standard operating procedures and issues include:

- No documentation about which specialty accepts which type of referrals
- Referrals (paper/fax) frequently lost in transit
- No confirmation of receipt of referral for some faxed referrals
- Appointment outcomes rarely communicated back to ward doctors

This quality improvement project will focus on radiology referrals initially and explore other referrals as time allows.

Objectives:

- Achieve 100% of referrals made to radiology being actioned.
- Reduce delays in requesting referrals
- Improve the security of patient information
- Formalise handover of physical health appointment outcomes

Proposals:

- To create electronic referrals
- To create a template for staff to record physical health appointments outcome
- To create a directory of how to refer to different specialties at RLI

GLP-1 mimetics in neuropathologies

Mark Maskery, Academic Clinical Fellow in Neurology

Cerebral small vessel disease (CSVD) is increasingly prevalent in our ageing population and its burden underlies a diverse range of presentations such as stroke, dementia, mood disturbance and change in gait. Management of CSVD currently relies on risk factor modification such as smoking status, hypertension and lipid profile.

Glucagon-like peptide 1 (GLP-1) mimetics have demonstrated sustained and reproducible neuroprotective, neurotrophic and anti-inflammatory properties in the pre-clinical setting. Clinical trials are already ongoing to assess GLP-1 mimetics within Alzheimer's and Parkinson's disease; we intend to consider their application to CSVD.

Measuring CSVD, and therefore the ability to analyse the response to potential novel therapies, is inherently difficult. Cognitive tests have thus far remained unsuccessful, owing to the time required to detect a meaningful change in function. We aim to establish and validate surrogate markers for CSVD using Magnetic Resonance Imaging to facilitate future research into therapies such as GLP-1 mimetics.

What is a good anaesthetic for hip fracture repair?

Cliff Shelton, Doctoral Research Fellow in Anaesthesia

Hip fractures are common amongst frail elderly patients; they require surgical fixation to reduce pain and permit mobilisation. But what is a good anaesthetic for hip fracture repair? A relevant question in the context of an ageing population. It is also a question that appears to have the academic anaesthetic community stumped, but not for want of trying: all recent meta-analyses of spinal versus general anaesthesia (the two principal anaesthetic options) indicate equipoise. What should anaesthetists do in the absence of a directive evidence base? Apparently, we scatter in every direction: rates of spinal anaesthesia vary from under 10% to over 90%, depending on hospital.

In this ethnographic study I unpack 'the good anaesthetic' though observing anaesthetists at work in three different hospitals selected for their diversity of practice in hip fracture anaesthesia. My objective is to understand why anaesthetists do what they do and make sense of the variation that is seen by some to be a scandal.

Creating a ward list to assist with handover for junior doctors at The Orchard – a quality improvement project

Khojasta Talash, Academic Foundation Doctor

Objectives: The aim of this project was to create an up-to-date ward list containing details of all current inpatients to ensure:

- Baseline physical health checks were performed.
- All doctors were aware of management plans for all patients.
- On-call doctors had access to a concise record of patient information

Results: When comparing the two-week period before and after the introduction of the ward list, four out of seven blood tests and three out of seven ECGs were not reviewed before introduction; all admission bloods and ECGs were reviewed after introduction.

Conclusion: Having a handover list improved junior doctors' awareness of patients' plans on the ward and provided better quality of care as their physical health was monitored more effectively.

A qualitative exploration of consultant anaesthetist's attitudes to and experiences of perioperative medication errors in emergency and elective theatre settings

Noamaan Wilson-Baig, Academic Clinical Fellow in Anaesthesia

Documented medication errors (MEs) during the perioperative period have been occurring for many years. Despite the prevalence of these errors, research is limited to reviews, surveys, retrospective studies, and one observational study. Although research exploring MEs in other medical specialties have been published, these results cannot be generalised to the perioperative period due to differences in the medication administration process. This qualitative study aims to identify causes of perioperative MEs from the perspective of healthcare professionals who regularly administer medication and work in theatre, i.e. anaesthetists. These causes could relate to inadvertent syringe swap, fatigue or accidental overdose. Additionally, the study aims to explore the attitudes to, and experiences of perioperative MEs amongst consultant anaesthetists. Results from this study could have implications for policy makers in addressing and preventing perioperative MEs.

The Future of Academic Clinical Training at Lancaster

The last decade has seen a number of milestones in academic clinical training in Lancaster: these include the introduction of the Academic Foundation Programme, the expansion of the Academic Clinical Fellowships to multiple clinical specialties, the development of the MSc in clinical research, and the enrolment of the first clinical trainees to undertake the Doctor of Medicine and Doctor of Philosophy degrees at Lancaster Medical School. This continued expansion of academic clinical training in Lancaster has made it viable to run the Academic Clinical Trainees Symposium for the first time this year, and we hope this will become established as an annual event, supporting the growing sense of community amongst the city's academic clinical trainees.

Over the next year we hope that the links between the Trust and the University will continue to grow – Drs Marwan Bukhari and Laura Machin are currently involved in a project to catalogue the opportunities available at LMS for academic foundation doctors, whilst MBHTs research and development department continues to provide invaluable support for the clinical and educational research of ACFs and doctoral fellows.

For those who are interested in applying for an academic clinical training post in Lancaster, please note

that the recruitment process differs somewhat from that of clinical training posts: Academic Clinical Fellowships are advertised several months prior to the corresponding clinical posts (recruitment window typically October – December), see https://www.nwpgmd.nhs.uk/nihr-academic-clinical-fellowships-glance for details. The Academic Foundation Programme recruitment window is the same as that for the national Foundation Programme, however candidates are required to attend an interview in addition to the usual recruitment process. See http://www.foundationprogramme.nhs.uk/pages/fp-afp/how-to-apply/academic-training for details.

CONCLUSION

Academic clinical training in Lancaster, both at the Medical School and the Trust, encompasses a wide variety of clinical specialties and research methodologies, as evidenced by the abstracts above. We intend to build on the success of the Symposium by continuing to hold annual events in order to bring together all of those involved in academic clinical training in the city of Lancaster.

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New UHMBT Chief Executive appointed

Aaron Cummins has been appointed as the new Chief Executive of University Hospitals of Morecambe Bay NHS Foundation Trust (UHMBT).

Aaron's appointment follows the decision by the current Chief Executive, Dame Jackie Daniel, to step down from her role at the end of March 2018.

The decision to appoint Aaron was approved by the UHMBT Council of Governors on Thursday 1 March. It was the final stage of a rigorous selection process that tested the leadership qualities and abilities of shortlisted candidates.

Aaron has been Deputy Chief Executive and Director of Finance at UHMBT since January 2014.

Ian Johnson, incoming Chair, UHMBT, said: "This Trust has had the benefit of one of the best NHS leaders in Dame Jackie for the last five and a half years, resulting in the organisation being recognised by the Care Quality Commission as 'outstanding' for care with an overall rating of 'good'. Our ambition is to now become 'outstanding' overall.

"I believe we are very fortunate to have secured the services of Aaron to take over from Dame Jackie and continue her legacy of improvement and commitment to quality, and I am quite confident he will do so. Aaron has a great reputation throughout the organisation and beyond, and I'm sure he will have the full support of the workforce."

Dame Jackie Daniel, current Chief Executive, UHMBT, said: "I'm delighted to welcome Aaron to the role of Chief Executive."

Colin Ranshaw, Head Governor, UHMBT, said: "I know Aaron cares deeply about standards of care for patients and ensuring that staff are treated fairly. If he isn't in his office, you can usually find him on a hospital ward talking to staff and patients, and I am confident he will keep this visible approach alive as our next Chief Executive.